REMARKS

The present invention is a communication system for implementing personalizable and customizable features while avoiding feature interactions and a system for implementing features while avoiding feature interactions. A communication system for implementing personalizable and customizable features while avoiding feature interactions in accordance with an embodiment of the invention includes a tuple space (3); and a plurality of user agents (10) representing the features, the user agents communicating with each other via assertions posted to the tuple space in order to implement the features, each of the features being structured as a set of deontic task trees having a parent node with an obligated inherent action in a plurality of child nodes with respective node interactions performed according to a predetermined sequence for implementation of each feature, the results of which are reported back to the parent node, the parent node having deontic modalities on the behavior of the child nodes such that successful implementation of the features results from successful occurrence of the inherent action and composed success of the node actions of the children nodes. In the Substitute Specification, see paragraphs [0046] - [0054] for an explanation of deontic logic and see paragraphs [0055] - [0069] for an explanation of the configuration of nodes into a tree.

The Examiner has requested information pursuant to 37 C.F.R. §1.105. The Applicant responds thereto as follows.

First, the references used in drafting the specification are those cited therein which were considered to be prior art material to the claimed invention.

As indicated by the Examiner on page 3 of the Office Action, the Applicant is requested to submit an Information Disclosure Statement to cite additional prior art. The "Coordinating with Obligations" publication authored by Barbuceanu, Mankovski and Gray has already been considered by the Examiner on the record in an Information Disclosure Statement by Applicant on December 28, 2006. Therefore, the second reference identified on page 4 ("Coordinating with Obligations") of the Office Action is already of record.

The Crespo et al. publication entitled "Feature Execution Trees and Interactions" is submitted herewith in the Information Disclosure Statement along with additional references for the Examiner's consideration. The Crespo et al. publication is considered to <u>not</u> be relevant to the claimed subject matter for the reason that Feature Interaction Trees (FETs) are disclosed for Crespo et al. for the detection of feature interactions. As may be seen from Figure 3 of Crespo, et al. the FETs do not disclose a deontic or other form of mode or logic. Instead the trees execute downwardly first left to right until they succeed or fail.

In contradistinction, independent claims 1 and 30 recite "respective node actions performed according to a predetermined sequence for implementation of each feature, the results of which are reported back to said parent node, said parent node placing deontic modalities on the behavior on said child nodes such that successful implementation of each feature results from successful occurrence of said inherent action and composed success of the node actions of said children nodes." Crespo et al differs fundamentally in not disclosing parent nodes placing deontic modalities on the behavior of child nodes, the results of child node operation are not reported back to the parent nodes and the trees do not involve the

composed success of child nodes to determine whether or not a feature has been successfully implemented. Therefore, while Crespo et al disclose FETs, the disclosure therein is submitted to render unpatentable the claimed invention.

Additional prior art cited in the concurrently filed Information Disclosure Statement is for consideration of the Examiner but is submitted to not disclose the aforementioned claimed features. The Examiner in the February 4, 2008 Advisory Action, in response to the December 28, 2007 Amendment, indicated "only reference cited in 105 requirement are allowed to be entered, other references are not considered." In view of this Amendment being submitted as part of a RCE, the Examiner's consideration of all of the previously submitted references is requested.

Moreover, it is noted on the top of page 4 of the Office Action that the Examiner set a shortened statutory period of response of two months for responding to the aforementioned requirement. However, the Examiner is directed to MPEP §704.13 which clearly states that when a requirement is made, such as the Examiner has made for additional information pursuant to 37 C.F.R. §1.105, the longer shortened statutory period for the Office Action governs the time for response.

The specification stands objected to pertaining to the insertion of new matter. The specification has been amended to refer to the original foreign application with parenthetical reference to the corresponding U.S. patent being included which is believed to not result in new matter since the parenthetical reference is merely to show the U.S. counterpart patent of the referenced application. However, if the Examiner objects the Applicants will cancel the reference to the U.S. counterpart patent.

Claims 1-10 and 12-57 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, the Examiner has considered the claims to be indefinite for the recitations in claims 1 and 30 of "said parent node placing deontic modalities on the behavior of said child nodes such that successful implementation of said (SIC) [claims 1 and 30 refer to successful implantation of <u>each</u> feature results from occurrence of said inherent action and composed success of nodes actions of said child nodes]". As the Examiner is aware the claims are judged by the understanding of a person of ordinary skill in the art. The Examiner is referred to paragraphs [0047], [0050] and [0053] of the Substitute Specification including tables 2 and 3. Upon reading of this portion of the disclosure it is clear that the claimed successful implementation of each feature results from occurrence of inherent action and composed success of the node action of the child nodes as further expanded upon by paragraphs [0050] and [0053] and tables 2 and 3. It is submitted that a person of ordinary skill in the art understands that successful implementation of each feature results from success of the nodes own action and actions of its children as set forth in the independent claims .

Claims 10 and 13 have been cancelled which moots the stated grounds of rejection with respect to those claims.

Claims 1-10 and 12-57 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. These grounds of rejection are traversed for the following reasons.

In the first place, independent claim 1 recites a communication system which has long been considered to be statutory subject matter regardless of whether under 35 U.S.C. §101 a communication system is either a "machine", as commented upon by the Examiner in the continuation sheet of the Advisory Action, or a manufacture as stated by Applicants and the Board of Appeals. The claimed communication system either is a "manufacture" or a machine in accordance with 35 U.S.C. §101 comprising a tuple space which is a physical memory space as described below and a plurality of user agents. The Examiner's citation, in the Remarks on the Continuation Sheet, of a tuple space being described in the specification as "a set of type/valve ordered pairs called ingles" is discussed below.

It has been previously decided that a communication system is statutory subject matter which is considered to be an article of manufacture under 35 U.S.C. §101. See Ex Parte Jonathan Mass Appeal No. 95-2552 where the Board held (emphasis added):

> "Appellant argues that the communication systems of claims 1 and 15 fall within the class of a "manufacture" under §101. We agree. A manufacture is defined to include: "Every article devised by man except machinery upon the one side, and compositions of matter and designs on the other." 1 Chisum, Patents & 1.02[3] (1994), quoting W. Robinson, The Law of Patents for Useful Inventions 270 (1890). The communication systems are comprised of physical man-made articles...The communications system has utility in the technological field of telecommunications and thus is subject matter consistent with the Constitutional purpose to promote the progress of "useful arts," Article 1, Section 8. Accordingly, the systems of claims 1 and 15 are considered statutory subject matter under §101 within the class of a "manufacture" (emphasis added).

Therefore, the Examiner's comments in response to the Applicant's argument that the claimed system is an article of manufacture, are submitted to be erroneous in view of the citation of the Board Decision. Moreover, the prosecution previous to

the citation of the Board Decision did not argue that the claimed systems were any particular category of invention under 35 U.S.C. §101. If the Examiner considers the particular category of invention under 35 U.S.C. §101 to be of importance in the continued prosecution of this application, it is requested that the Examiner state his position on the record, including why the cited Board Decision holding that a communication system is a manufacture is erroneous.

Paragraph [0058] of the Substitute Specification, which the Examiner refers to in the Remarks of the Continuation Sheet as paragraph [0067] of the Substitute Specification, has been amended to correct the obvious typographical error of reference to a "tuple space" which has been amended to refer to a "tuple". This is clear from paragraph [0059] of the Substitute Specification. The first sentence of paragraph [0059] states: "[t]he <u>tuple space</u> enables coordination by allowing queries based on the matching of <u>tuples</u> by anti-tuples (emphasis added)". In context of the above sentence and the remainder of the disclosure, the tuple space is the physical space of the memory in which a tuple, as now defined in paragraph [0058] as amended, is stored. In other words, the tuple space stores tuples as defined in paragraph [0058].

Additionally, it is well understood by persons of ordinary skill in the art that the claimed tuple space is a memory. For example the Examiner is referred to U.S. Patent 5,963,947 in column 2, lines 40 et seq. which defines a tuple space as "a globally shared, associatively address memory space that is organized as a grouping of tuples." Moreover, the aforementioned Crespo et al publication also defines tuple space on page 3 column 2, in the last paragraph before section 2.3, as "[t]he tuple space is an associatively addressed memory, allowing a fast selection of

the tuples that satisfy a template." A tuple space is defined in Wikipedia as "an implementation of the associative memory paradon for parallel/distributing computing…a repository of tuples that can be accessed concurrently, consider that there are a group of processors that produce pieces of data and a group of processors that use the data...post their data as tuples in the space and the consumer is then retrieved data from the space that match a certain pattern". Finally, Buhr et al, on page 2, paragraph 2, upon which the Examine relies, defines a tuple in the same manner as paragraph [0058] of the Substitute Specification as amended, namely, "[a] tuple is a set or ordered pairs called ingles." It is clear that persons of ordinary skill in the art consider the claimed tuple space to be a memory for storing tuples which is not a software element. Therefore, the Examiner's principal contention that the claims recite merely software is fundamentally flawed. The claims recite statutory subject matter comprised of a communication system or system including a memory recited as a tuple space.

Moreover, the Examiner cannot cite any case law which supports the proposition that the system of claims 30-57 or the communication system of claims 1-9 and 11-29 (as for example considered by the Board above to be statutory subject matter as an article of manufacture) is non-statutory subject matter simply because at least one of the elements may be implemented in software. The Examiner can not point to anything in the independent claims which limits the elements thereof to software.

It is noted the Examiner cites M.P.E.P. Section 2106.01 for the proposition "that functional descriptive material *per se* (i.e., software *per se*) is non-statutory."

The relevant part of M.P.E.P. 2106.01 is set forth below:

> Computer programs are often recited as part of a claim. USPTO personnel should determine whether the computer program is being claimed as part of an otherwise statutory manufacture or machine. In such a case, the claim remains statutory irrespective of the fact that a computer program is included in the claim. The same result occurs when a computer program is used in a computerized process where the computer executes the instructions set forth in the computer program. Only when the claimed invention taken as a whole is directed to a mere program listing, i.e., to only its description or expression, is it descriptive material *per se* and hence nonstatutory (emphasis added).

Therefore, the claimed communication system/system is statutory subject matter. The issue of whether the claimed communication system/system is a manufacture or machine does not matter in the determination of compliance with 35 U.S.C. §101 since either the Examiner's determination of the claims being drawn to a machine or the Board's holding that the claims are an article of manufacture requires the same result under the above authority of the M.P.E.P. Moreover, the claimed tuple space being a physical memory dictates that the preamble and body of the claimed communication systems/system is statutory since both the preamble and body, when read together as they must be, requires the claim to be construed to cover a statutory communication system/system system including a memory.

Even assuming arguendo that the claimed plurality of user agents are implementable in software, the claims recite an associative relationship as part of a system or communication system involving the tuple space and the plurality of user agents which interact as a set of deontic task trees...each feature results from successful occurrence of said inherent action and composed success of the node actions of said children nodes". Therefore the claimed system/communication system comprises of a tuple space which is clearly a non software memory element

which is statutory subject in association with a plurality of user agents which are not limited to a software program and define a functional entity which may be implemented in software or otherwise. The claims are not non-statutory simple because one or more of the elements may be implemented in software.

Finally, given the authority of the Board Decision that a communication system is statutory subject matter, it is submitted that no authority exists for the rejection of the claims as being drawn to non-statutory subject matter based upon some of the recited elements of the body of the claims being disclosed, as contended by the Examiner, as implementable as software. In today's modern world almost all communication systems are implemented by cooperating entities that at least in part are implemented by software. These modern "communication systems" do not become non-statutory because a preferred form of their implementation is software.

If the Examiner persists in the stated grounds of rejection of non-statutory subject matter, it is requested he specifically answer each of the above basis set forth by the Applicants why the claims do define statutory subject matter including citation of any authority which the Examiner has holding that the claiming of a system/communication system which in part may be implemented in software and includes a memory renders the system non-statutory subject matter.

Claims 1 and 30 stand rejected under 35 U.S.C. §102 as being anticipated by admitted prior art. The Examiner predicates the rejection of claims 1 and 30 respectively on claims 10 and 39 being interpreted as a Jepson claim. These grounds of rejection are traversed for the following reasons.

Claims 10 and 39 have been cancelled which moots the grounds of rejection. Moreover, to the extent that claims 10 and 39 are being interpreted as an admission of prior art, such interpretation is not the intention of the Applicant in drafting claims 10 and 39. The construction the Examiner has placed on those claims as admitted prior art is not the intention of the Applicant and that construction of the claims as stated by the Examiner fails to particularly point and distinctly claim the subject which the Applicant regards as the invention. Therefore, the Examiner's construction of the claims as an admission of prior art is erroneous with the Examiner's construction thereof rendering the claims to be violation of the second paragraph of 35 U.S.C. §112 since the Applicants did not regard the claimed subject matter of claims 10 and 39 to be an admission of prior art.

Claims 1-9 and 12-57 stand rejected under 35 U.S.C. §103 as being obvious over the Buhr et al. publication ("Feature-Interaction Visualization and Resolution in an Agent Environment in view of the Coordinating with Obligations Publication of Mihai, et al."). These grounds of rejection are traversed for the following reasons.

The Examiner, in the Continuation Sheet of the Advisory Action, states: "Buhr clearly states 'run time' at the abstract." The Abstract is reproduced below:

> Abstract. Our project is concerned with how dynamic agencies (sets of collaborating agents that vary their composition and collective behaviour over time) may be used to resolve demanding telecom problems in a flexible manner. Feature interaction (FI) is being studied as an instance of such problems for which dynamic agencies may be an appropriate solution. In our approach, <u>Use Case Maps (UCMs) provide system-wide "behaviour structures"</u> that enable people to get a global understanding of dynamic situations. Feature interactions can be seen visually in the UCMs and then be reasoned about and resolved by people at the UCM level. Tables generated from <u>these behaviour structures provide a framework for humans to add information that will enable executable prototypes to be generated</u>. These executable prototypes are FI-avoidant systems where features are modeled as competing rule engines and interactions are detected

> and <u>resolved at run</u> time by coordinating through a black board. The approach offers the promise of being scalable to practical numbers of features and is being considered for use in future commercial systems (emphasis added).

While reference is made to "run time", in context what the Abstract conveys to a person of ordinary skill in the art is that UCMs are used to generate executable prototypes having a feature interaction (FI) which is detected and resolved at run time by coordination through a blackboard. In other words, Buhr et al's executable prototypes are FI avoidant before they are executed because possible feature interactions have been identified at the design stage and include code to resolve FI at run time. The Buhr et al type of system has difficulty of adding new features to an already existing set. The executable prototypes of Buhr et al are FI avoidant upon creation and the claimed invention's features are FI avoidant during execution due to the claimed "successful implementation" of said features results from "successful occurrence of said inherent action and composed success of the node actions of said children nodes."

Independent claims 1 and 30 respectively recite a communication system for implementing pesonalizable and customizable features while avoiding feature interactions and a system for implementing features while avoiding feature interactions including a plurality of user agents representing said features...each of said features being structured as a set of deontic task trees having a parent node with an obligated inherent action and a plurality of child nodes with respective node interactions performed according to a predetermined sequence for implementation of each feature, the results of which are reported back to said parent node, said parent node placing deontic modalities on the behavior of said child nodes such that successful implementation of each feature results from successful occurrence of

said inherent action and composed success of the node actions of said children nodes. The Examiner correctly admits that Buhr et al. do not teach deontic task trees.

Then the Examiner asserts as follows:

> "However, Mihai teaches deontic tree (See e.g. Mihai's Fig. 4. See also pg. 9-11 section 6). Mihai also teaches that the parent node placing deontic modalities on the behavior of at least one of said child (See e.g. Mihai's section 6, especially on propagating constraint onto child nodes). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modified Buhr's with Mihai. One would have been motivated to do so because deontic tree is a tree structure of duties or obligations (As argued by the applicant on pg. 29 of the remark), which UCM lacks of. UCM only only provide visual representation of structures. Hence, by replacing CUM with deontic tree, one can incorporate duties or obligations into the structure representation."

The Examiner's assertion regarding Mihai, et al. is erroneous. In the first place Buhr et al for the reasons noted above and Mihai, et al. do not address run time resolution of features which is recited in each of the claims by "the results of which are reported back... composed success of the node actions of said children nodes".

Paragraphs [0017] - [0020] of the specification discuss Mihai et al. using OPI for preplanning of features but not run time operation. These paragraphs are reproduced as follows:

> [0017] There are several handicaps in the approach of Barbuceanu et al that must be remedied for practical use. For example, the use of truth maintenance for the propagation of received constraints in OPI is a very complex and time-consuming task. It is impractical to use truth maintenance for the run-time resolution of feature conflicts. Chief among the difficulties in using OPI is the fact that a truth maintenance system, on receiving a new constraint, is capable of identifying as forbidden actions that have already taken place. How such a system would react to 'un-ring a bell', for example, or to withdrawing an alerting signal sent to a user in run-time resolution, is not clear. Indeed, a close reading of the

prior art publication of Barbuceanu et al shows that OPI is intended for pre-planning of features and not for run-time operation.

[0018] Since OPI is intended for the pre-planning or off-line definition of features, it has no need to specify observers of real world states. It does not have to address the problem of responding to changes in the environment.

[0019] The original OPI structure has difficulty with the composition of features (i.e. the task of adding a new feature to an already existing set). The original OPI assumes consistency of a given set of features based on the values of the deontic modalities that govern each node. What this means is that the tree stands on its own and does not communicate with any other set of features. It does not have a way of coordinating its behavior with other sets of features. There is no insight in the published OPI concepts about where a new or additional feature should be added to an existing tree.

[0020] The original OPI, as discussed above, is not concerned with run-time operation. It is primarily a planning tool. For run-time operation, the trees must be able to respond to events (assertions and state changes in the world) so as to adapt feature behavior. A feature therefore must have the ability to recognize that the intent of what it is trying to do may not be possible and in response gracefully modify its behavior.

Mihai et al. pertain to a protyping system for preplanning or off line definition of features which is a characteristic also shared by Buhr et al. Neither Buhr et al., as recognized by the Examiner, nor Mihai et al, provide the aforementioned subject matter of claims 1 and 30. The Examiner's characterization of the parent node placing deontic modalities on the behavioral said child nodes is erroneous.

Mihai et al's use of deontic constraints is for determining actions in the tree which will be performed or alternatively determine actions which are prohibited and therefore must not be performed. This teaching does not address nor suggest the limitation set forth above in claims 1 and 30 of reporting of results back to the parent nodes and moreover does not suggest "said parent node placing deontic modalities of the

behavior of said child nodes such that successful implementation of each feature results from the successful occurrence of said inherent action and composed success of the node actions of said children nodes".

It is submitted, that contrary to the Examiner's interpretation, Mihai, et al. do not teach the parent node placing deontic modalities on the behavior of said child nodes but merely teach the use as planning tool.

If the Examiner persists in the stated grounds of rejection it is requested that he clarify on the record his basis for the conclusion that Mihai, et al. cure the deficiencies of Buhr et al. pertaining to deontic tree utilization. While Mihai, et al. certainly do discuss deontic trees in section 6 including deontic propagation in a network as illustrated in Figure 4, such teaching does not meet the claims for the reasons set forth above and specifically that Mihai, et al. do not teach a parent node placing deontic modalities on the behavior of said child nodes. Section 6 of Mihai et al merely teaches deontic propagation as a planning tool as is apparent from the text of section 8.

Attached is a partial list of papers authored by co-inventor Tom Gray. It is submitted that these papers do not address the deficiencies noted above with respect to the cited prior art. However they are supplied to facilitate the Examiner's requesting of the submission of any additional prior art even though it is believed that the cited prior art is not material to the examination of the claimed invention.

To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with the

filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (1375.42981X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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Tom Gray Papers

Papers in International Conferences and Workshops

1. Gray, T., Peres, E., Pinard, D., Abu Hakima, S., Diaz, A., Ferguson, I., *A Multi-Agent Architecture for Enterprise Applications*, Business Process Reengineering Workshop Notes AAAI-94.

2. Gray, T., Weiss, M., Diaz, A., *A Middleware for Developing Distributed Multimedia Applications*, Proceedings of the ISCA International Conference on Parallel and Distributed Computing, Orlando 1995.

3. Weiss, M., Gray, T., Diaz, A., *An Agent Based Distributed Multimedia Service Environment*, International Conference on Tools with AI, Herndon VA. 1995.

4. Weiss, M., Gray, T., Diaz, A., *A Service Environment for Distributed Multimedia Applications,* Workshop of Distributed Information Networks, IJCAI 95, Montreal.

5. Weiss, M., Gray, T., Diaz, A., *Experiences with a Service Environment for Distributed Multimedia Applications*, Feature Interactions in Telecommunication Networks IV, IOS Press, pages 242-253.

6. Pinard, D., Gray, T., Mankovski, S., Weiss, M., *Issues in Using an Agent Framework for Converged Voice and Data Applications*, The Second International Conference on the Practical Applications of Intelligent Agents and Multi-Agent Technology, London 1997.

7. Buhr, R.J.A.., Amoyt, D., Elammari, M., Quesnel, D., Gray, T., Mankovski, S., *High Level Multi-Agent prototypes from a Scenario Path Notation: A Feature Interaction Example*, The Third International Conference on the Practical Applications of Intelligent Agents and Multi-Agent Technology, London 1998 .

8. Barbuceanu, M., Gray, T., Mankovski, S., *How to Make Your Agents Fulfill Their Obligations,* The Third International Conference on the Practical Applications of Intelligent Agents and Multi-Agent Technology, London 1998,

9. Barbuceanu, M., Gray, T., Mankovski, S., *Coordinating with Obligations*, Second International Conference on Autonomous Agents, Minneapolis 1998.

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10. D. Amyot, L. Charfi, N. Gorse, T. Gray, Logrippo, J. Sincennes, B. Stepien, T. Ware (2000), *Feature Description and Feature Interaction Analysis with Use Case Maps and LOTOS*. In: Sixth International Workshop on Feature Interactions in Telecommunications and Software Systems (FIW'00), Glasgow, Scotland, UK, May 2000.

11. D. Amyot, L. Logrippo, R.J.A. Buhr, and T. Gray (1999*), Use Case Maps for the Capture and Validation of Distributed Systems Requirements*. In: Fourth International Symposium on Requirements Engineering (RE'99), Limerick, Ireland, June 1999.

12. R.J.A. Buhr, D. Amyot, M. Elammari, D. Quesnel, T. Gray, and S. Mankovskii (1998), *Feature-Interaction Visualization and Resolution in an Agent Environment*. In: Kimbler, K. and W. Bouma (eds.), Fifth International Workshop on Feature Interactions in Telecommunications and Software Systems (FIW'98), IOS Press, Amsterdam, Netherlands, pp. 135-149.

13. R.J.A. Buhr, M. Elammari, T. Gray, and S. Mankovskii (1998), *Applying Use Case Maps to Multi-agent Systems: A Feature Interaction Example.* In: 31st Annual Hawaii International Conference on System Sciences (HICSS'98), Hawaii, USA, January 1998.

14. R.J.A. Buhr, M. Elammari, T. Gray, and S. Mankovskii (1998), *A High Level Visual Notation for Understanding and Designing Collaborative, Adaptive Behaviour in Multiagent Systems*. In: 31st Annual Hawaii International Conference on System Sciences (HICSS'98), Hawaii, USA, January 1998.

15. C. Zheng, A. Karmouch, T. Gray, S. Mankovskii, R. Impey. *Ensuring secure communication for a distributed mobile computing system based on Micmac.* International Workshop on Mobile Agent for Telecommunication Applications (MATA'99), Oct. 1999, Ottawa, Canada, pages 375-392.

16. *H. Harroud, A. Karmouch, T. Gray, S. Mankovskii. An agent-based architecture for inter-sites personal mobility management system,* International Workshop on Mobile Agent for Telecommunication Applications (MATA'99), Oct. 1999 Ottawa, Canada, pages 345-358.

17. M. Amer, A. Karmouch, T. Gray, S. Mankovskii. *Adding Mobility to Corba,* International Workshop on Mobile Agent for Telecommunication Applications (MATA'99), Oct. 1999 Ottawa, Canada, pages 143-160.

18. M. Amer, A. Karmouch, T. Gray, S. Mankovskii , *Policies for Feature Interaction Resolution,* Third IFIP/IEEE International Conference on Management of Multimedia Networks and Services' 00, September 25-28, 2000, Fortaleza - Ceara, Brazil.

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19. M. Amer, A. Karmouch, T. Gray, Serge Mankovskii, *Feature-Interaction Resolution Using Fuzzy Policies*, Proc. Sixth International Workshop on Feature Interactions in Telecommunications and Software Systems, 17th - 19th May 2000, Glasgow, Scotland, UK.

20. H. Harroud, M. Ahmed, A. Karmouch, T. Gray, R. Impey, *Agent-based Personalized Services in A Mobile Computing Environment*, IEEE/PACRIM'01, August 26-28, 2001, Victoria, B.C., Canada

21. M. Barbuceanu, T. Gray, S. Mankovskii. *Providing telecommunication services through multi-agent negotiation*, Intelligent Agents for Telecommunication Applications. Third International Workshop (IATA'99), 9-10 Aug. 1999, Stockholm, Sweden, pages 124-36.

22. M. Amer, A. Karmouch, T. Gray, S. Mankovskii. *A multi-agent architecture for the resolution of feature conflicts in telephony.* Proceedings of the International Conference on Practical Application of Intelligent Agents and Multi-Agents, 5th (PAAM 2000), April 2000, Manchester UK, pages 53-74.

23. R. Crespo, L. Logrippo, T. Gray, Feature {E}xecution {T}rees and {I}nteractions, The 2002 International Conference on Parallel Distributed Processing Techniques and Applications, June 2002, Las Vegas NV, pp1230-1236

Journal Papers

1. M. Barbuceanu, T. Gray, S. Mankovskii. *Role of obligations in multiagent coordination*, Applied Artificial Intelligence Vol. 12 No. 1-2, pages 11-38, 1999

2. H. Harroud, A. Karmouch, T. Gray, S. Mankovskii. *Agent-based QoS negotiation for mobile users,* Interoperable Communications Networks Vol. 2 No. 2-4 pages 243-251, 1999.

3. M. Amer, A. Karmouch, T. Gray, S. Mankovskii, "An Agent Model for the Resolution of Feature Conflicts in Telephony", Journal of Network and Systems Management Vol. 9, No. 2, September 2000

4. D.Amyot, T.Gray, R.Liscano L.Logrippo, J. Sincennes. Interactive Conflict Detection and Resolution for Personal Features. Journal of Communications and Networking, 7 (3) (Sept. 2005), 353-366

5. K. J. Turner, S. Reiff-Marganiec, L. Blair, P. Jianxiong, T. Gray, P. Perry, Policy Support for Call Control, Computer Standards and Interfaces, Elsevier, Amsterdam, Netherlands, June 2006, Vol. 28, No. 6, pp635-649